FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

April 30 to May 6, 2017 (Week 18)

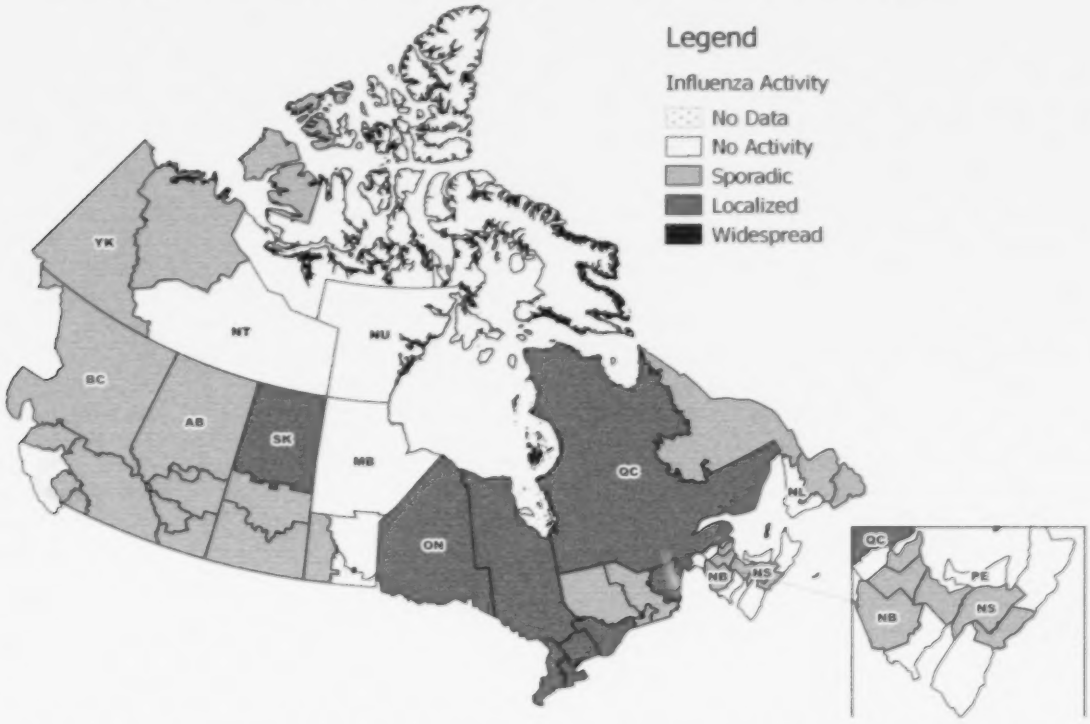
Overall Summary

- Overall, influenza activity continues to decline slowly in Canada.
- The provinces of Ontario and Quebec accounted for the majority (60%) of all influenza laboratory detections for week 18.
- In week 18, influenza B accounted for the majority of influenza activity in Canada, with 70% or more of influenza laboratory detections, and outbreaks due to influenza B.
- This increase in influenza B activity is expected as influenza B often appears later in the flu season.
- The majority of laboratory detections, hospitalizations and deaths have been among adults aged 65+ years.
- For more information on the flu, see our Flu(influenza) web page.

Influenza/Influenza-like Illness (ILI) Activity (geographic spread)

In week 18, 15 regions across eight provinces and territories reported no influenza or influenza-like illness activity. Sporadic influenza activity was reported in 28 regions across ten provinces and territories. Localized activity was reported in ten regions across three provinces. For more details on a specific region, click on the map.

Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, Week 18

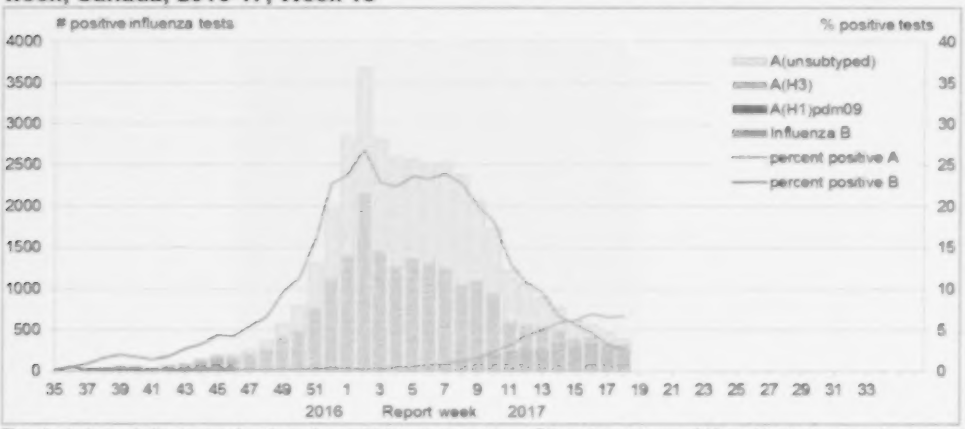


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available in the mapping feature found in the Weekly Influenza Reports.

Laboratory Confirmed Influenza Detections

In week 18, the number (370) and the percentage (9.5%) of tests positive for influenza decreased from the previous week. Influenza B was the most common type of influenza detected in all jurisdictions in Canada. Since week 16, the percentage of tests positive for influenza B has plateaued (6.6% to 6.9%), but has not yet begun a clear decline. Overall in week 18, influenza B, accounted for 70% of total detections. The number of influenza B detections remains low compared to the same time period in recent seasons. For data on other respiratory virus detections, see the Respiratory Virus Detections in Canada Report on the Public Health Agency of Canada (PHAC) website.

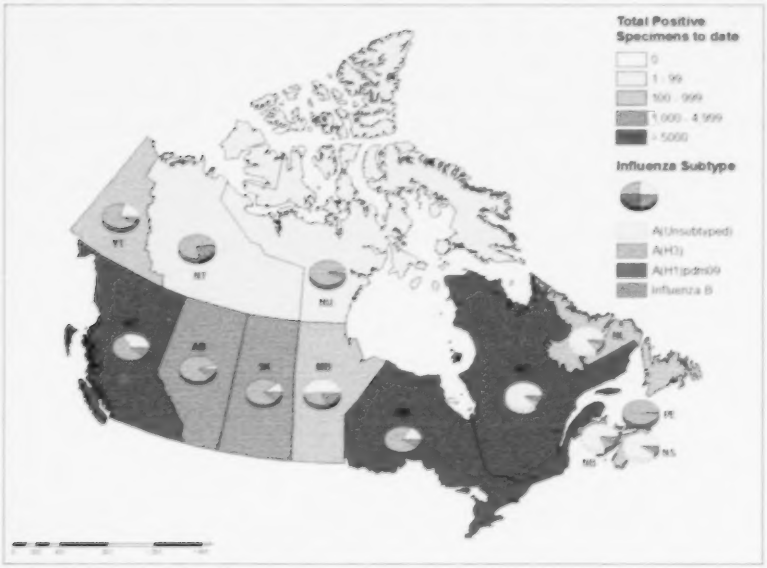
Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2016-17, Week 18



The shaded area indicates weeks where the positivity rate was at least 5% and a minimum of 15 positive tests were observed, signalling the period of seasonal influenza activity.

To date this season, 38,024 laboratory confirmed influenza detections have been reported, of which 91% have been influenza A. Influenza A(H3N2) has been the most common subtype detected this season. For more detailed weekly and cumulative influenza data, see the text descriptions for Figures 2 and 3 or the Respiratory Virus Detections in Canada Report.

Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province/territory, Canada, 2016-17, Week 18



To date this season, detailed information on age and type/subtype has been received for 26,290 laboratory-confirmed influenza cases (Table 1). Among cases with reported age and type/subtype information, adults aged 65+ accounted for half of the reported influenza cases. Adults aged 65+ have predominantly been affected by influenza A accounting for 51% of influenza A detections. Influenza B, while much smaller in number, is mainly affecting individuals less than 65 years of age. Individuals less than 65 years of age accounted for 67% of influenza B detections.

Table 1 – Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[1], Canada, 2016-17, Week 18

Age groups (years)	Week (April 30, 2017 to May 6, 2017)					Cumulative (August 28, 2016 to May 6, 2017)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	#	%
0-4	<5	0	0	<5	9	2233	13	826	1394	216	2449	9%
5-19	>5	0	<5	5	29	2207	11	1076	1120	423	2630	10%
20-44	>8	0	<5	8	28	3418	23	1799	1596	432	3850	15%
45-64	>16	0	<5	16	33	3900	21	1946	1933	585	4485	17%
65+	19	0	0	19	61	12060	10	5424	6626	816	12876	49%
Total	58	0	6	>48	160	23818	78	11071	12669	2472	26290	100%
Percentage[2]	27%	0%	x%	x%	73%	91%	0%	46%	53%	9%		

[1]Table 1 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Cumulative data include updates to previous weeks.
[2]Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3]UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.
Specimens from NT, YT, and NU are sent to reference laboratories in the provinces.

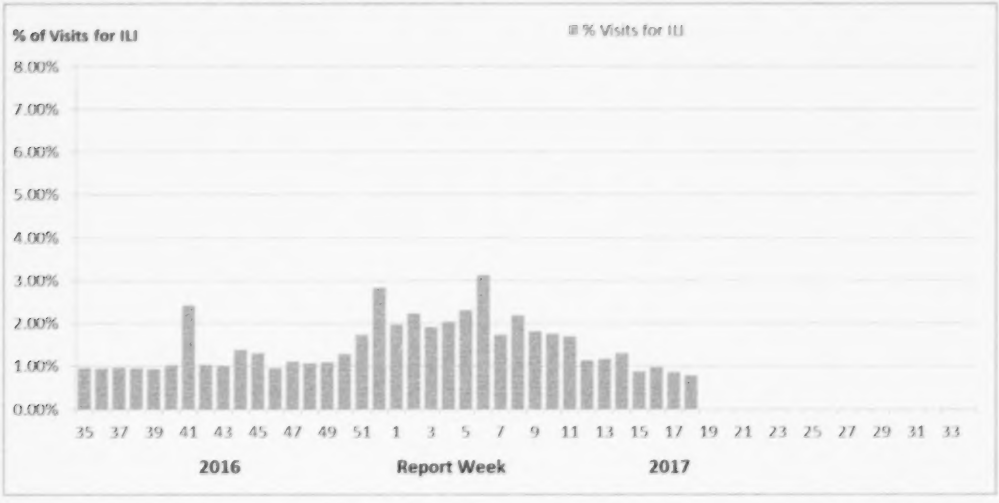
Syndromic/Influenza-like Illness Surveillance

Healthcare Professionals Sentinel Syndromic Surveillance

In week 18, 0.8% of visits to healthcare professionals were due to influenza-like illness, a decrease compared to the percentage of visits reported in week 17.

Figure 4 – Percentage of visits for ILI reported by sentinels by report week, Canada, 2016-17

Number of Sentinels Reporting Week 18: 107



Delays in the reporting of data may cause data to change retrospectively. In BC, AB, and SK, data are compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

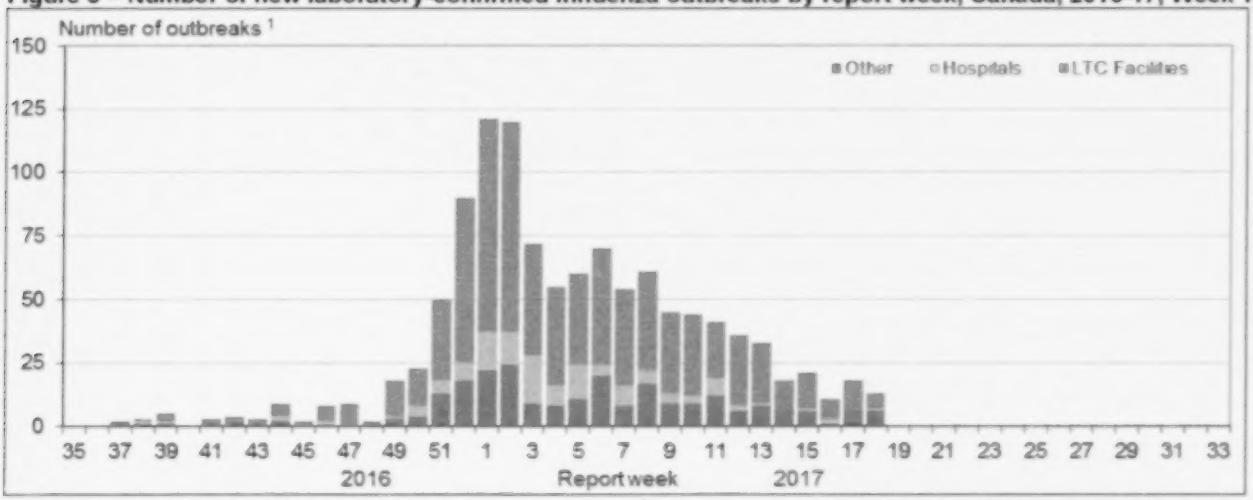
Are you a primary healthcare practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel? Please visit our Influenza Sentinel page for more details.

Influenza Outbreak Surveillance

In week 18, 13 laboratory-confirmed influenza outbreaks were reported, a decrease from the previous week. Of the seven outbreaks with known strains or subtypes: two were due to influenza A and six were due to influenza B.

To date this season, 1,149 outbreaks have been reported and the majority (66%) have occurred in LTC facilities. A total of 71 outbreaks (6%) due to influenza B have been reported.

Figure 5 – Number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2016-17, Week 18



[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions.Outbreak definitions are included at the end of this report.

Provincial/Territorial Influenza Hospitalizations and Deaths

In week 18, 75 influenza-associated hospitalizations were reported by participating provinces and territories*, a slight decrease from 78 reported in the previous week. In week 18, 52% of hospitalizations occurred in adults 65+ and influenza B accounted for 61% of reported hospitalizations. Additionally,eight intensive care unit (ICU) admissions and six deaths were reported.

To date this season, 6,220 hospitalizations have been reported, of which 91% were due to influenza A. Among cases for which the subtype of influenza A was reported, 99% were influenza A(H3N2). Adults 65+ accounted for 68% of the hospitalizations. A total of 251 ICU admissions and 361 deaths have been reported. The majority of deaths (88%) were reported in adults aged 65+ years.

Table 2 – Cumulative number of hospitalizations, ICU admissions and deaths by age and influenza type reported by participating provinces and territories, Canada, 2016-17, Week 18

Age Groups (years)	Cumulative (August 28, 2016 to May 6, 2017)						
	Hospitalizations			ICU Admissions		Deaths	
	Influenza A Total	Influenza B Total	Total [# (%)]	Influenza A and B Total	%	Influenza A and B Total	%
0-4	440	53	493 (8%)	16	7%	<5	x%
5-19	236	60	296 (5%)	15	6%	<5	x%
20-44	290	26	316 (5%)	23	10%	5	1%
45-64	747	94	841 (14%)	72	30%	35	10%
65+	3882	282	4164 (68%)	116	48%	310	88%
Total	5595	515	6110 (100%)	242	100%	354	100%

x: Supressed to prevent residual disclosure

*Note: Influenza-associated hospitalizations are not reported to PHAC by BC, NU, and QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not distinguished among hospital admissions reported from ON. The hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

Sentinel Hospital Influenza Surveillance

Pediatric Influenza Hospitalizations and Deaths

In week 18, ten laboratory-confirmed influenza-associated pediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, of which nine were associated with influenza B. Pediatric hospitalizations have been declining since the peak in early January. The number of weekly hospitalizations has been below the six year average since early February (Figure 7).

To date this season, 541 laboratory-confirmed influenza-associated pediatric hospitalizations were reported by the IMPACT network. Children aged 0-23 months accounted for approximately 38% of hospitalizations and influenza A accounted for 83% of the reported hospitalizations. Among the 93 hospitalizations due to influenza B, 50 (54%) were in children over the age of 5 years. In comparison, children over the age of 5 years accounted for 33% of influenza A hospitalizations. Additionally, 92 intensive care unit (ICU) admissions have been reported. A total of 63 ICU cases (68%) reported at least one underlying condition or comorbidity. Less than five deaths have been reported this season.

Figure 6 – Cumulative numbers of pediatric hospitalizations (≤16 years of age) with influenza by age-group reported by the IMPACT network, Canada, 2016-17, Week 18

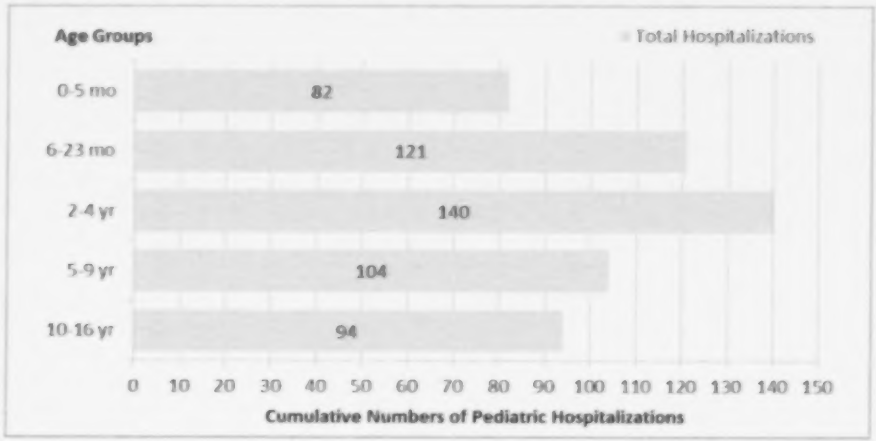
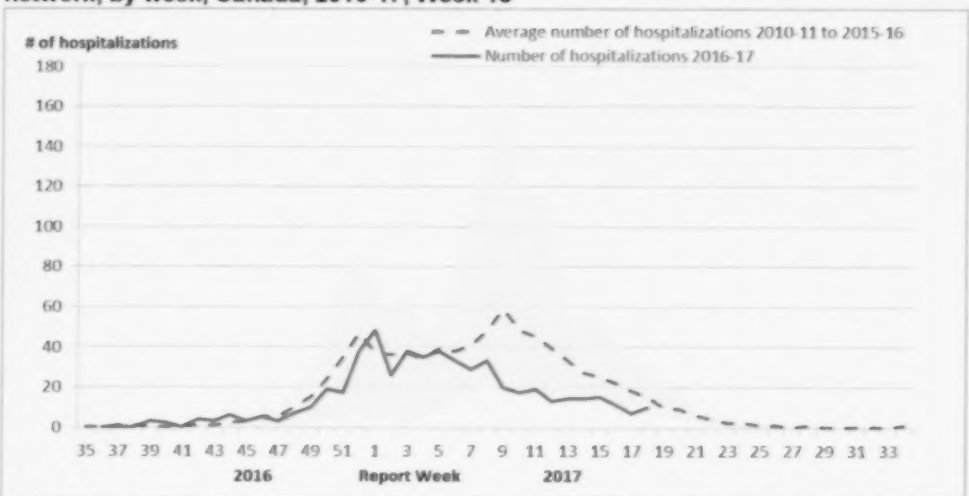


Figure 7 – Number of pediatric hospitalizations (≤16 years of age) with influenza reported by the IMPACT network, by week, Canada, 2016-17, Week 18



The shaded area represents the maximum and minimum number of cases reported by week from seasons 2010-11 to 2015-16

The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated pediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths

In week 18, two laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations were reported by the Canadian Immunization Research Network (CIRN), a decrease from the previous week. In week 18 influenza B accounted for all reported hospitalizations.

To date this season, 1,535 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations have been reported by CIRN. Influenza A accounted for 93% of hospitalizations. Adults aged 65+ accounted for 78% of hospitalizations. To date, 141 intensive care unit (ICU) admissions have been reported. Among cases with available data, 120 ICU cases (85%) reported at least one underlying condition or comorbidity. The median age of patients admitted to the ICU was 71 years. Approximately 84 deaths have been reported this season, the majority in adults aged 65+. The median age of reported deaths was 85 years.

Figure 8 - Cumulative numbers of adult hospitalizations (≥20 years of age) with influenza by type and age-group reported by CIRN, Canada, 2016-17, Week 18

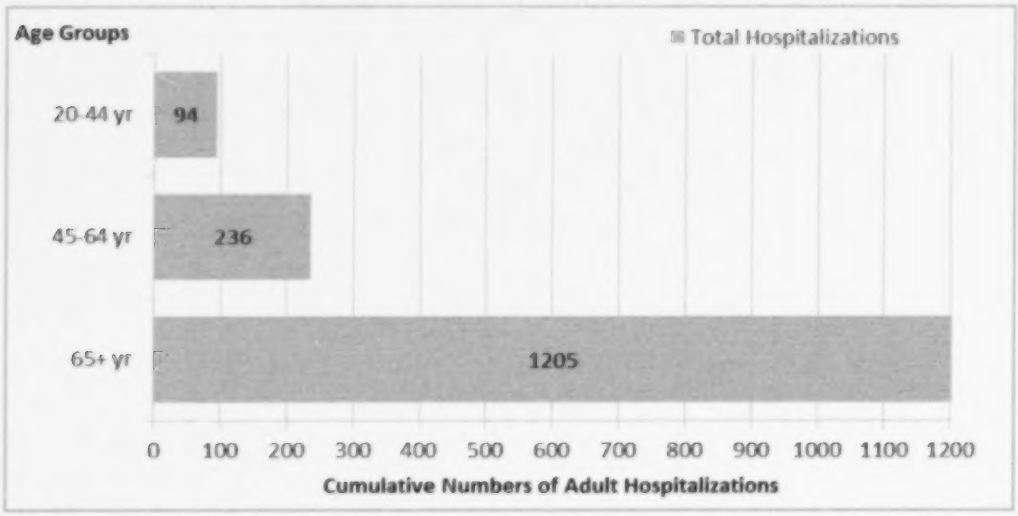
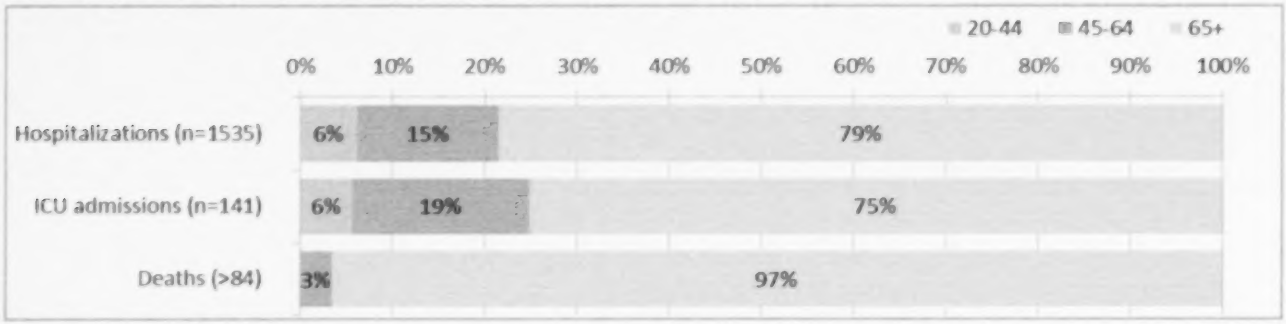


Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza by age-group (≥20 years of age) reported by CIRN, Canada 2016-17, Week 18



The number of hospitalizations reported through CIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Influenza Strain Characterizations

During the 2016-17 influenza season, the National Microbiology Laboratory (NML) has characterized 1,844 influenza viruses [1527 A(H3N2), 36 A(H1N1), 281 influenza B]. All but one influenza A virus (n=1526) and 61 influenza B viruses characterized were antigenically or genetically similar to the vaccine strains included in both the trivalent and quadrivalent vaccines. Two hundred and twenty influenza B viruses were similar to the strain which is only included in the quadrivalent vaccine.

Table 3 – Influenza strain characterizations, Canada, 2016-17, Week 18

Strain Characterization Results[1]	Count	Description
Influenza A (H3N2)		
Antigenically A/Hong Kong/4801/2014-like	357	Viruses antigenically similar to A/Hong Kong/4801/2014, the A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine.
Genetically[2] A/Hong Kong/4801/2014-like	1169	Viruses belonging to genetic group 3C.2a. A/Hong Kong/4801/2014-like virus belongs to genetic group 3C.2a and is the influenza A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine. Additionally, genetic characterization of the 357 influenza A (H3N2) viruses that underwent HI testing determined that 294 viruses belonged to genetic group 3C.2a and 63 viruses belonged to genetic group 3C.3a. The majority of viruses belonging to genetic group 3C.3a are inhibited by antisera raised against A/Hong Kong/4801/2014[3].
Antigenically A/Indiana/10/2011-like[4]	1	Viruses antigenically similar to A/Indiana/10/2011, a candidate H3N2v vaccine virus.
Influenza A (H1N1)		
A/California/7/2009-like	36	Viruses antigenically similar to A/California/7/2009, the A(H1N1) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent influenza vaccine.
Influenza B		
B/Brisbane/60/2008-like (Victoria lineage)	61	Viruses antigenically similar to B/Brisbane/60/2008, the influenza B component of the 2016-17 Northern Hemisphere's **trivalent** and **quadrivalent** influenza vaccine.
B/Phuket/3073/2013-like (Yamagata lineage)	220	Viruses antigenically similar to B/Phuket/3073/2013, the additional influenza B component of the 2016-17 Northern Hemisphere **quadrivalent** influenza vaccine.

[1] The NML receives a proportion of the influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Strain characterization data reflect the results of hemagglutination inhibition (HI) testing compared to the reference influenza strains recommended by WHO.
[2] Determined by sequence analysis.
[3] WHO - Recommended composition of the influenza virus vaccines for use in the 2016-17 northern hemisphere influenza season.
[4] Detected in epidemiological week 50. For more details, see Week 50 report.

Antiviral Resistance

During the 2016-17 season, the National Microbiology Laboratory (NML) has tested 1029 influenza viruses for resistance to oseltamivir, 1028 influenza viruses for resistance to zanamivir and 226 influenza viruses for resistance to amantadine. All but two influenza A(H3N2) viruses were sensitive to oseltamivir and all viruses were sensitive to zanamivir. All 226 influenza A viruses were resistant to amantadine (Table 4).

Table 4 – Antiviral resistance by influenza virus type and subtype, Canada, 2016-17, Week 18

Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	739	2 (0.3%)	738	0 (0%)	196	196 (100%)
A (H3N2v)	1	0 (0%)	1	0 (0%)	1	1 (100%)
A (H1N1)	35	0 (0%)	34	0 (0%)	29	29 (100%)
B	254	0 (0%)	255	0 (0%)	NA[1]	NA[1]
TOTAL	1029	2 (0.2%)	1028	0 (0%)	226	226 (100%)

[1]NA: Not Applicable

Provincial and International Influenza Reports

- World Health Organization influenza update
- World Health Organization FluNet
- WHO Influenza at the human-animal interface
- Centers for Disease Control and Prevention seasonal influenza report
- European Centre for Disease Prevention and Control - epidemiological data
- South Africa Influenza surveillance report
- New Zealand Public Health Surveillance
- Australia Influenza Report
- Pan-American Health Organization Influenza Situation Report
- Alberta Health – Influenza Surveillance Report
- BC - Centre for Disease Control (BCCDC) - Influenza Surveillance
- New Brunswick – Influenza Surveillance Reports
- Newfoundland and Labrador – Surveillance and Disease Reports
- Nova Scotia - Flu Information
- Public Health Ontario – Ontario Respiratory Pathogen Bulletin
- Manitoba – Epidemiology and Surveillance – Influenza Reports
- Saskatchewan – influenza Reports
- PEI – Influenza Summary

FluWatch Definitions for the 2016-2017 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/Influenza outbreaks

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.
Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.
Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.
Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.
Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported
2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†
3 = Localized: (1) evidence of increased ILI* ;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†
4 = Widespread: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.
** More than just sporadic as determined by the provincial/territorial epidemiologist.*
† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.
This report is available on the Government of Canada Influenza webpage. Ce rapport est disponible dans les deux langues officielles.